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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/087,981	03/05/2002	Luc Nougier	612.41239X00	6977

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EXAMINER

DUONG, THANH P

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/087,981

Applicant(s)

NOUGIER ET AL.

Examiner

Tom P. Duong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/5/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The preliminary amendments filed on March 3, 2002 and June 3, 2002 are acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3, 10, and 13-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Busson et al. (5,554,347) or Alagy et al. (5,270,016). Regarding claims 1, 3, and 10, Busson and Alagy disclose a reactor device (Fig. 1B, and Fig. 1C) for carrying out chemical reactions requiring heat exchange (3), said reactor, which is elongate along an axis (XX'), having, at a first end (inlet), at least one means (5) for supplying at least one reactant and, at an opposite end, at least one means (10) for evacuating the effluents formed, and having a plurality of heat exchange means (3) separated by at least one internal partition (11,22) participating in controlling the residence time (Col. 11, lines 42-45) of the reactant or reactants and increasing the heat exchange surface inside the reactor (Col. 10, lines 63-67 and Col. 11, lines 1-5), and passages for circulating the reactant or reactants and/or effluents (distance Ee),

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provided between said heat exchange means and said internal partitions (Col. 11, lines 48-52), characterized in that the reactor (Fig. 1B, Fig. 1C) has at least one enclosure (12) of a refractory material made of ceramic material (Col. 11, lines 39-41) of ensuring heat insulation and containing the heat exchange means (3) and internal partitions (11,22), and in that said enclosure is contained in an envelope (outer walls of reactor) containing the reactant or reactants and/or effluents circulating inside said reactor; the internal partitions (11, 22) have recesses (distance Ee) for receiving the heat exchange means (3). Regarding claims 13-16, Busson '347 (Col. 1, lines 8-54) and Alagy '016 (Col. 89-17) disclose the reactor can be used in various process of the claimed invention. Note, apparatus claims cover what a device is, not what a device does. See *Hewlett-Packard Co. v. Bausch & Lomb Inc.* 909 F.2d 1464, 1469, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2, 4-9, and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Busson '347 or Alagy '016 in view of Grehier et al. (4,612,982).

Regarding claims 2 and 4-5, Busson '347 or Alagy appears to disclose the internal

partitions made of modular elements (See Alagy '016, Col. 5, lines 13-31). For purpose of argument, Grehier teaches the heat transfer plates are stacked into lattices to form a modular structure to allow easy adaptation of different type of fluids (Col. 1, lines 5-9 and Col. 1, lines 40-68). Thus, it would have been obvious in view of Grehier to one having ordinary skill in the art to modify the partition plates of Busson '347 or Alagy '016 with a modular structure as taught by Grehier in order to allow easy adaptation for operating different type of fluids. With respect to "abutting or non-abutting" modular elements, Applicants have not disclosed criticality or unexpected results for providing abutting or non-abutting modular elements, it appears Busson '347 or Alagy '016 in view of Grehier provide a reactor with the same performance as the claimed invention. In addition, it would have been obvious in view of the applied references to one having ordinary skill in the art to provide abutting or non-abutting modular elements since the court held that the use of a one-piece construction versus a single integral piece would be merely a matter of obvious engineering choice. See *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) and *Schenck v. Norton Corp.*, 713 F.2d 782, 218 USPQ 698 (Fed. Cir. 1983). Regarding claims 6 and 7, Busson '347 and Alagy '016 disclose the various shapes and sizes of the tubes and shell (Busson '347, Col. 5, lines 1-24 and Alagy '016, Col. 10, lines 18-41). It would have been obvious in view of the applied references to one having ordinary skill in the art to change the size and shape the shell (reactor wall) versus the envelope (12) to optimize the reaction zone as evidenced by Busson '347, Col. 5, lines 1-47 and Alagy '016, Col. 10, lines 18-41). In addition, the court held that a change in size and shape is not patentably distinct over

the prior art. See *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955), *In re Rinehart*, 531 F.2d 1048, *In re Dailey*, 357 F.2d 669. Regarding claim 8, it is conventional to provide envelope or reactor wall made of metal and it would have been obvious to do so here to provide metal wall with adequate support to the internal structure and withstand internal vessel pressure. Regarding claim 9, it is conventional to provide anchoring means between the reactor wall and the enclosure 10 or refractory material and it would have been obvious to do so here to facilitate fastening and/or securing the refractory enclosure to the reactor wall or envelope. Regarding claim 11, it is inherent and/or obvious that the fitting of the enclosure 12 against the inside wall reactor prevent or minimize bypassing of the reactant gases (Busson '347 and Alagy '016) being the fact that refractory material 12 serve as a heat insulating material to minimize heat loss to the exterior of the reactor. Regarding claim 12, Busson '347 and Alagy '016 disclose the versatility of the heat exchange construction (Busson '347, Col. 5, lines 58-65) allow reaction zone with modification of various length; thus, it inherently and/or obvious that the applied references provide heat exchange means and internal partition with easy access to the internal parts for modification, service and/or repairs.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tom P. Duong whose telephone number is (571) 272-2794. The examiner can normally be reached on 8:00AM - 4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tom Duong
June 6, 2005
TD



Glenn Caldarola
Supervisory Patent Examiner
Technology Center 1700